

Remarks

The various parts of the Office Action (and other matters, if any) are discussed below under appropriate headings.

Claim Rejections - 35 USC § 102 and § 103

In rejecting claims 1-10, 14-15 and 17 as being anticipated by Liao, the Office Action provides only the following discussion.

Liao et al. teaches of image registration (abstract) utilizing a number of modalities including x-ray (Figure 3). Liao et al teaches of optical tracking for instrument and display tracking (page 398 ¶ 2). Figure 8 details (x,y,z) transform in which the optical tracking system is a 3D system which uses multiple angles. Also as shown in Figure 8, the tracking markers are disposed in a linear arrangement. Liao et al. teaches of representing the surgical instrument on the display due to occlusion that occurs during interventional surgery (abstract). Liao et al. teaches that the method overcomes parallax error (page 399, Section 4).

It is unclear how the Examiner is applying Liao to each of the claims purportedly anticipated by Liao in that many of the elements recited in claim 1 (and various dependent claims) are not addressed in the rejections.

Claim 1, which has been amended for clarity, recites a method for registering an image data set for visualizing internal areas of the body that includes, *Inter alia*, determining a relative position of an imaging device and an external body part, producing an image data set for the internal area, and registering the data set of the internal area based on the relative position between the imaging device and the external body part.

While Liao discusses registration generally, Liao has not been found to disclose or fairly suggest determining a relative position of an imaging device and an external body part. Further, Lia has not been found to disclose or fairly suggest registering image data of an internal area of the body based on a relative position between the imaging device and the external body part.

The claimed invention deals with a problem not contemplated by Liao, namely, registering image data of an internal area of the body, where the internal area does not contain data on external areas of the body. In solving this problem, the claimed

invention makes use of an external body part to form a bridge by means of which registration of the internal area of the body is then enabled.

For at least these reasons, Liao cannot be found to anticipate claim 1. Accordingly, the rejections of claims 1-10, 14-15 and 17 should be withdrawn.

In addition, other dependent claims recite additional features not disclosed or fairly suggested by Liao. For example, claim 3 recites wherein determining a relative position of the imaging device and the external body part includes providing the external body part with markings, moving the imaging device to one or more positions in which the markings appear in a defined position, and recording movement of the imaging device.

As another example, dependent claim 4 recites wherein the markings are attached to the external body part such that they appear in one viewing direction in a linear arrangement.

Liao has not been found to disclose or fairly suggest the features recited in either of dependent claims 3 or 4. While the Office Action points to Figure 8 of Liao for a teaching of "tracking markers are disposed in a linear arrangement," it is respectfully submitted that this reliance is misplaced because Figure 8 has been found to show markers only on the surgical instrument.

In rejecting claims 11-13, 16 and 18 as being obvious, the Examiner relies on Peters to supplement the teachings of Liao. Peters has not been found to cure the above-described deficiencies of Liao with respect to claim 1. In addition, a full reading of Peters reveals that Peters, in fact, teaches away from providing an external body part with markings. Peters at page 2, paragraph 2.5, discusses problems with skin mounted markers and further states, "the only way to achieve patient-to-image registration with the same accuracy as can be obtained with a stereotactic frame is by using bone-mounted fiducial markers."

For at least these reasons, Liao and Peters fail to render claims 11-13, 16, and 18 obvious. Therefore, the rejections should be withdrawn.

New claim 19 recites a method for registering an image data set for visualizing an internal area of the body that includes registering or assigning the image data set of

the internal area of the body with respect to a spatial position of the external body part based on relative position between the imaging device and the external body part.

It is respectfully submitted that this claim is in condition for allowance for at least the reasons discussed above with respect to claim 1.

Conclusion

In view of the foregoing, request is made for timely issuance of a notice of allowance.

Respectfully submitted,

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